Alex Murshteyn, Site Acquisition
c/o New Cingular Wireless, PCS LLC (AT&T)
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767
Mobile: (508) 821-0159
AMurshteyn@centerlincommunications.com

February 19, 2016

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification // Site Number: CT2091 (Site Name: Ansonia NW)
401 Wakelee Avenue, Ansonia, CT 06401 (401 Wakelee Street)
N 41.35615 // W 73.09193

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains 9 antennas at the 167-foot level of the existing 196-foot lattice tower at 401 Wakelee Avenue, Ansonia, CT. The tower is owned by American Tower Asset Sub, LLC. The property is also owned by City of Ansonia. AT&T now intends to replace 3 of its existing antennas with 3 new GSM/WCS (850/2300 band) antennas for its LTE upgrade. These antennas would be installed at the 167-foot level of the tower. AT&T also intends to install 3 remote radio units, 1 surge arrestor, 2 DC power lines and 1 fiber line.

The current proposal involves an antenna swap only (three for three); no antennas will be added.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to David S. Cassetti, Mayor for the City of Ansonia, as well as the tower owner, American Tower Asset Sub, LLC and the ground owner, City of Ansonia.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

Attached to accommodate this filing are construction drawings dated February 16, 2016 by ComEx Consultants, a structural analysis dated December 10, 2015 by Infinigy Engineering and an Emissions Analysis Report dated November 9, 2015 by EBI Consulting.

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading as shown in the attached structural analysis by Infinigy Engineering, dated December 10, 2015.

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

_____

Alex Murshteyn, Site Acquisition
c/o New Cingular Wireless, PCS LLC (AT&T)
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767
Mobile: (508) 821-0159
AMurshteyn@centerlincommunications.com

Attachments

cc: David S. Cassetti, Mayor, City of Ansonia - as elected official
American Tower Asset Sub, LLC - as tower owner
David S. Cassetti, Mayor, City of Ansonia - as property owner (reference only / see above)

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Structural Analysis Report

Structure	:	**196 ft Self Supported Tower**
ATC Site Name	:	**Ansonia Wakelee, CT**
ATC Site Number	:	**302470**
Engineering Number	:	**64510421**
Proposed Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**Ansonia NW**
Carrier Site Number	:	**CT2091/FA#10035308**
Site Location	:	**401 Wakelee Ave** **Ansonia, CT 06401-1226** **41.356069,-73.092000**
County	:	**New Haven**
Date	:	**December 10, 2015**
Max Usage	:	**101%**
Result	:	**Pass**

Prepared By:
Aaron Estabrooks
Infinigy

STATE OF CONNECTICUT
JOSEPH R. JOHNSTON
DEC 10 2015
29460
LICENSED
PROFESSIONAL ENGINEER

AMERICAN TOWER®
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Calculations ..... Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 196 ft self supported tower to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	Rohn Drawing #A991899, dated July 7, 1999
Foundation Drawing	Rohn Drawing #A992523-1, dated September 22, 1999
Geotechnical Report	Tectonic Engineering Consultants W.O. #1170.C754, dated May 20, 1999

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	105 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Spectral Response:	Ss = 0.19, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
194.0	196.0	2	DragonWave A-ANT-18G-2-C	Sector Frames	(6) 1 5/8" Coax (10) 1 1/4" Coax (6) 5/16" Coax (2) 2" Conduit (2) 1/2" Coax	Clearwire
		2	DragonWave Horizon Compact			
	194.0	3	Argus LLPX310R			
		3	NextNet BTS-2500			Sprint Nextel
		2	EMS RR90-11-00DBL			
		6	Decibel DB844H90E-XY			
		3	KMW AM-X-WM-17-65-00T			
		3	KMW TTA (HB-X-WM-17-65-00T)			
184.0	184.0	1	12" x 12" Junction Box	Leg	(6) 1 5/8" Coax	
183.0	189.0	3	Alcatel-Lucent 800MHz RRH	Sector Frames	(3) 1 1/4" Hybriflex Cable	
		3	Alcatel-Lucent 1900MHz 4x45 RRH			
	186.0	6	Andrew DB980H90E-M			
		2	Powerwave P40-16-XLPP-RRR			
		1	RFS APXVSPP18-C-A20			
175.0	178.0	1	Swedcom SLCP 2x6014	Sector Frames	(12) 1 5/8" Coax	Verizon
		1	Antel BXA-70063-6BF-EDIN-X			
		3	Rymsa MGD3-800TX			
		1	Powerwave P65-16-XL-2			
		12	RFS FD9R6004/2C-3L			
		3	Antel BXA-80080/4CF			
		3	Antel BXA-171063-8CF-EDIN-X			
167.0	167.0	6	Ericsson RRUS 11 (Band 12) (55 lb)	Sector Frames	(12) 1 5/8" Coax (2) 0.78" 8 AWG 6	AT&T Mobility
	165.0	3	Powerwave 7770.00			
		3	KMW AM-X-CD-16-65-00T-RET			
		3	Powerwave TT19-08BP111-001			
157.0	157.0	3	Kathrein 742 213	Leg	(6) 1 5/8" Coax	Metro PCS
148.0	148.0	3	Andrew LNX-6515DS-VTM	Sector Frames	(12) 1 5/8" Coax (1) 1 1/4" Hybriflex	T-Mobile
		3	Ericsson RRUS 11 B12			
		3	Ericsson KRY 112 144/1			
		3	Ericsson AIR 21, 1.3M, B4A B2P			
		3	Ericsson AIR 21, 1.3 M, B2A B4P			
125.0	125.0	2	Motorola PTP54600	Leg	(2) 1/4" Coax	City Of Ansonia, CT
101.0	102.0	2	GPS	Standoffs	(2) 1/2" Coax	Sprint Nextel
79.0	89.0	1	10' Dipole	Standoffs	(1) 1/2" Coax	Ansonia Fire Department
76.0	76.0	1	PCTEL GPS-TMG-HR-26N	Standoffs	(1) 1/2" Coax	Sprint Nextel

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
167.0	167.0	3	Powerwave 7770.00	-	-	AT&T Mobility
		6	CCI DTMABP7819VG12A			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
167.0	169.0	3	Ericsson RRUS-32	Sector Frames	(2) 0.78" 8 AWG 6 (2) 0.39" Fiber Trunk	AT&T Mobility
		2	Raycap DC6-48-60-18-8F			
	165.0	1	CCI OPA-65R-LCUU-H8			
		2	CCI OPA-65R-LCUU-H6			
		3	Powerwave TT19-08BP111-001			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax stacked on top of existing AT&T Mobility coax.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	100%	Pass
Diagonals	101%	Pass
Horizontals	16%	Pass
Anchor Bolts	65%	Pass
Leg Bolts	82%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Uplift (Kips)	301.1	406.5	393.3	97%
Axial (Kips)	343.0	463.1	444.6	96%
Shear (Kips)	36.3	49.0	46.3	95%

*** The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1**

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
194.0	DragonWave A-ANT-18G-2-C	Clearwire	0.453	0.017	0.263
167.0	Powerwave TT19-08BP111-001	AT&T Mobility	0.347	0.013	0.249
	Raycap DC6-48-60-18-8F				
	Ericsson RRUS-32				
	CCI OPA-65R-LCUU-H6				
	CCI OPA-65R-LCUU-H8				

***Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

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Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

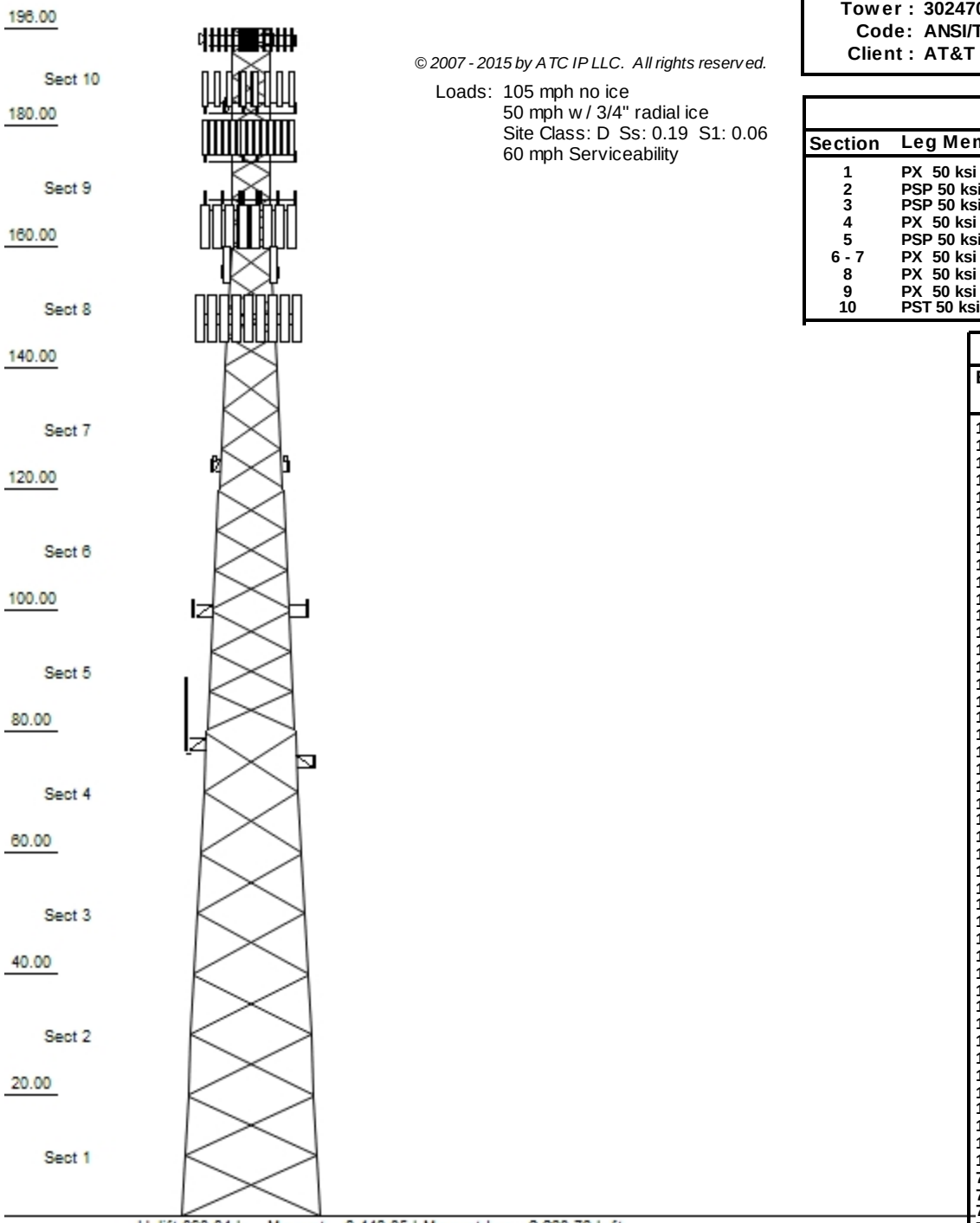
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.



Uplift 393.34 k Moment 8,448.05 k Moment Ice 2,263.76 k-ft
Vert 444.59 k Tot Down 61.39 k Tot Down Ice 175.61 k
Horiz 46.34 k Tot Shear 76.77 k Tot Shear Ice 20.78 k

Loads: 105 mph no ice
50 mph w / 3/4" radial ice
Site Class: D Ss: 0.19 S1: 0.06
60 mph Serviceability

Job Information

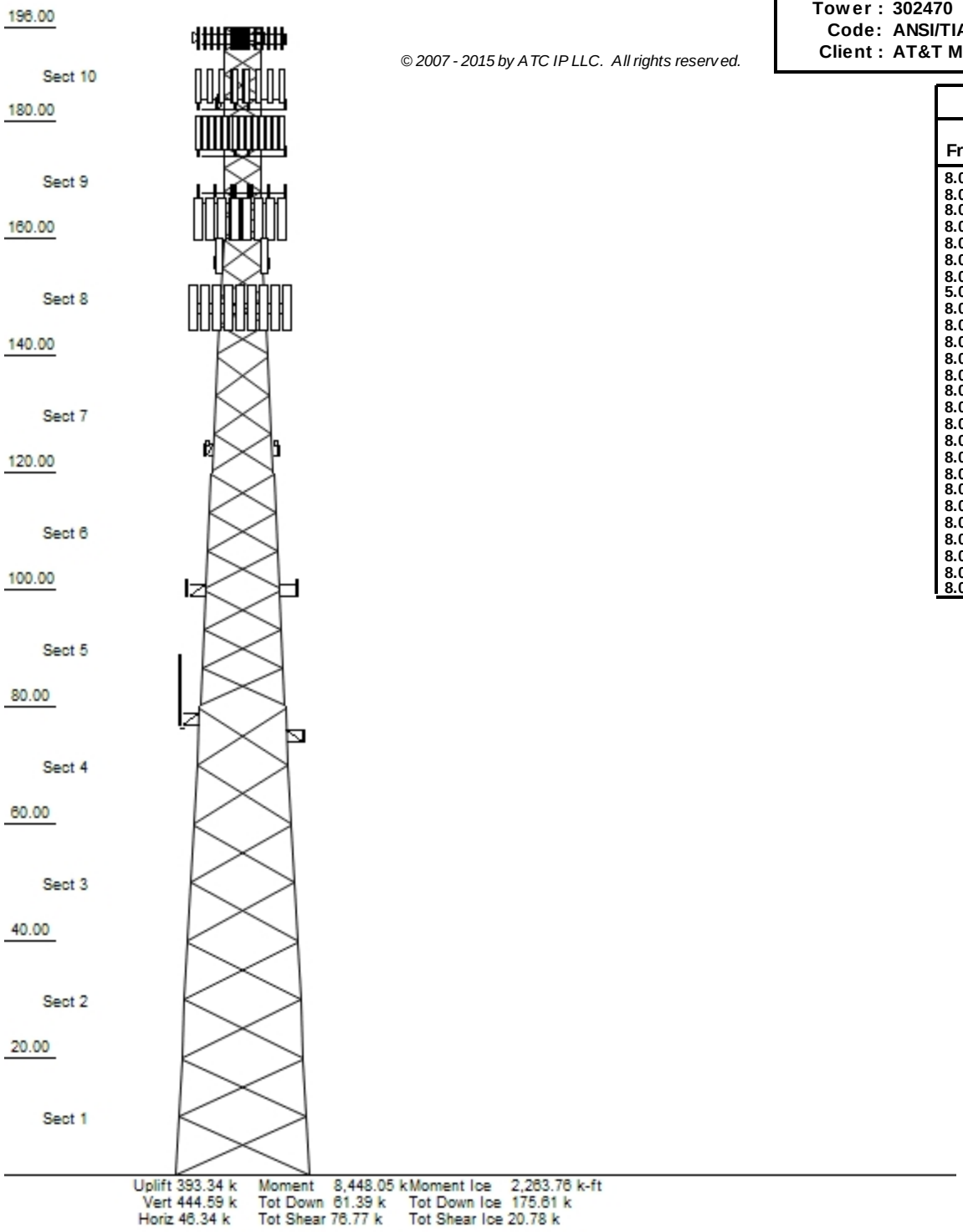
Tower : 302470	Location : Ansonia Wakelee, CT		
Code: ANSI/TIA-222-G	Shape : Triangle	Base Width : 23.00 ft	
Client : AT&T MOBILITY		Top Width : 6.65 ft	

Sections Properties

Section	Leg Members		Diagonal Members	Horizontal Members
1	PX 50 ksi	8" DIA PIPE	SAE 50 ksi 4X4X0.25	
2	PSP 50 ksi	ROHN 8 EHS	SAE 50 ksi 4X4X0.25	
3	PSP 50 ksi	ROHN 8 EHS	SAE 50 ksi 3.5X3.5X0.25	
4	PX 50 ksi	6" DIA PIPE	SAE 50 ksi 3.5X3.5X0.25	
5	PSP 50 ksi	ROHN 6 EHS	SAE 50 ksi 3X3X0.25	
6 - 7	PX 50 ksi	5" DIA PIPE	SAE 36 ksi 2.5X2.5X0.25	
8	PX 50 ksi	4" DIA PIPE	SAE 36 ksi 2X2X0.25	SAE 36 ksi 2X2X0.125
9	PX 50 ksi	3" DIA PIPE	SAE 36 ksi 2X2X0.1875	
10	PST 50 ksi	2-1/2" DIA PIPE	SAE 36 ksi 1.75X1.75X0.1875	SAE 36 ksi 2X2X0.125

Discrete Appurtenance

Elev (ft)	Type	Qty	Description
194.00	Panel	2	EMS RR90-11-00DBL
194.00	Panel	6	Decibel DB844H90E-XY
194.00	Panel	3	KMW AM-X-WM-17-65-00T
194.00	Panel	3	Argus LLPX310R
194.00	Dish	2	DragonWave A-ANT-18G-2-C
194.00	Panel	3	NextNet BTS-2500
194.00	Panel	2	DragonWave Horizon Compact
194.00	Panel	3	KMW TTA (HB-X-WM-17-65-00T)
194.00	Mounting Frame	3	Round Sector Frames
184.00	Panel	1	12" x 12" Junction Box
183.00	Panel	6	Andrew DB980H90E-M
183.00	Panel	3	Alcatel-Lucent 800 MHz RRH
183.00	Panel	3	Alcatel-Lucent 1900 MHz 4x45 R
183.00	Panel	2	Powerwave Allgon P40-16-XLPP-R
183.00	Panel	1	RFS APXVSPP18-C-A20
183.00	Mounting Frame	3	Round Sector Frames
175.00	Panel	1	Swedcom SLCP 2x6014
175.00	Panel	1	Amphenol Antel BXA-70063-6BF-E
175.00	Panel	3	Rymsa MGD3-800TX
175.00	Panel	1	Powerwave Allgon P65-16-XL-2
175.00	Mounting Frame	3	Flat Light Sector Frames
175.00	Panel	12	RFS FD9R6004/2C-3L
175.00	Panel	3	Antel BXA-80080/4CF
175.00	Panel	3	Amphenol Antel BXA-171063-8CF-
167.00	Panel	3	Ericsson RRUS-32
167.00	Panel	3	Powerwave Allgon 7770.00
167.00	Panel	3	KMW AM-X-CD-16-65-00T-RET
167.00	Panel	1	CCI OPA-65R-LCUU-H8
167.00	Panel	2	CCI OPA-65R-LCUU-H6
167.00	Panel	3	Powerwave TT19-08BP111-001
167.00	Panel	3	Powerwave TT19-08BP111-001
167.00	Panel	6	Ericsson RRUS 11 (Band 12) (55
167.00	Panel	2	Raycap DC6-48-60-18-8F
167.00	Mounting Frame	3	Round Sector Frames
157.00	Panel	3	Kathrein 742 213
148.00	Panel	3	Andrew LNX-6515DS-VTM
148.00	Panel	3	Ericsson RRUS 11 B12
148.00	Panel	3	Ericsson KRY 112 144/1
148.00	Panel	3	Ericsson AIR 21, 1.3M, B4A B2P
148.00	Panel	3	Ericsson AIR 21, 1.3 M, B2A B4
148.00	Mounting Frame	3	Round Sector Frame
125.00	Panel	2	Motorola PTP54600
101.00	Straight Arm	2	Standoffs
101.00	Whip	2	GPS
79.00	Straight Arm	1	Standoffs
79.00	Whip	1	10' Dipole
76.00	Straight Arm	1	Standoffs
76.00	Panel	1	PCTEL GPS-TMG-HR-26N



Job Information

Tower :	**302470**	**Location :**	**Ansonia Wakelee, CT**
Code:	**ANSI/TIA-222-G**	**Shape :**	**Triangle**
Client :	**AT&T MOBILITY**		

Base Width : 23.00 ft
Top Width : 6.65 ft

Linear Appurtenance

Elev (ft) From	To	Qty	Description
8.000	194.00	1	Wave Guide
8.000	194.00	1	Wave Guide
8.000	194.00	6	5/16" Coax
8.000	194.00	2	2" Conduit
8.000	194.00	2	1/2" Coax
8.000	194.00	6	1 5/8" Coax
8.000	194.00	10	1 1/4" Coax
5.000	194.00	1	Climbing Ladder
8.000	184.00	6	1 5/8" Coax
8.000	183.00	1	Wave Guide
8.000	183.00	3	1 1/4" Hybriflex Cab
8.000	175.00	12	1 5/8" Coax
8.000	167.00	1	Wave Guide
8.000	167.00	12	1 5/8" Coax
8.000	167.00	2	0.78" 8 AWG 6
8.000	167.00	2	0.78" 8 AWG 6
8.000	167.00	2	0.39" Fiber Trunk
8.000	157.00	1	Waveguide
8.000	157.00	6	1 5/8" Coax
8.000	148.00	1	Wave Guide
8.000	148.00	12	1 5/8" Coax
8.000	148.00	1	1 1/4" Hybriflex
8.000	125.00	2	1/4" Coax
8.000	101.00	2	1/2" Coax
8.000	79.000	1	1/2" Coax
8.000	76.000	1	1/2" Coax

Site Number:	**302470**	**Code:**	**ANSI/TIA-222-G**	
Site Name:	**Ansonia Wakelee, CT**	**Engineering Number:**	**64510421**	12/10/2015 1:49:27 PM
Customer:	**AT&T MOBILITY**			

Analysis Parameters

Location:	**New Haven County, CT**		
Code:	**ANSI/TIA-222-G**	**Height (ft):**	**196**
Shape:	**Triangle**	**Base Elevation (ft):**	**0.00**
Tower Manufacturer:	**Rohn**	**Bottom Face Width (ft):**	**23.00**
Tower Type:	**Self Support**	**Top Face Width (ft):**	**6.65**

Ice & Wind Parameters

Structure Class:	**II**	**Design Windspeed Without Ice:**	**105 mph**
Exposure Category:	**B**	**Design Windspeed With Ice:**	**50 mph**
Topographic Category:	**1**	**Operational Windspeed:**	**60 mph**
Crest Height:	**0.0 ft**	**Design Ice Thickness:**	**0.75 in**

Seismic Parameters

Analysis Method:	**Equivalent Modal Analysis & Equivalent Lateral Force Methods**				
Site Class:	**D - Stiff Soil**				
Period Based on Rayleigh Method (sec):	**0.99**				
T_L(sec):	**6**	**p:**	**1.3**	**C_S:**	**0.035**
S_S:	**0.195**	**S_1:**	**0.064**	**C_S, Max:**	**0.035**
F_a:	**1.600**	**F_V:**	**2.400**	**C_S, Min:**	**0.030**
S_{ds}:	**0.208**	**S_{d1}:**	**0.102**		

Load Cases

1.2D + 1.6W Normal	**105 mph Normal to Face with No Ice**
1.2D + 1.6W 60 deg	**105 mph 60 degree with No Ice**
1.2D + 1.6W 90 deg	**105 mph 90 degree with No Ice**
0.9D + 1.6W Normal	**105 mph Normal to Face with No Ice (Reduced DL)**
0.9D + 1.6W 60 deg	**105 mph 60 deg with No Ice (Reduced DL)**
0.9D + 1.6W 90 deg	**105 mph 90 deg with No Ice (Reduced DL)**
1.2D + 1.0Di + 1.0Wi Normal	**50 mph Normal with 0.75 in Radial Ice**
1.2D + 1.0Di + 1.0Wi 60 deg	**50 mph 60 degree with 0.75 in Radial Ice**
1.2D + 1.0Di + 1.0Wi 90 deg	**50 mph 90 degree with 0.75 in Radial Ice**
(1.2 + 0.2Sds) * DL + E Normal	**Seismic Normal**
(1.2 + 0.2Sds) * DL + E 60 deg	**Seismic 60 degree**
(1.2 + 0.2Sds) * DL + E 90 deg	**Seismic 90 degree**
(0.9 - 0.2Sds) * DL + E Normal	**Seismic (Reduced DL) Normal**
(0.9 - 0.2Sds) * DL + E 60 deg	**Seismic (Reduced DL) 60 degree**
(0.9 - 0.2Sds) * DL + E 90 deg	**Seismic (Reduced DL) 90 degree**
1.0D + 1.0W Service Normal	**Serviceability - 60 mph Wind Normal**
1.0D + 1.0W Service 60 deg	**Serviceability - 60 mph Wind 60 degree**
1.0D + 1.0W Service 90 deg	**Serviceability - 60 mph Wind 90 degree**

Tower Loading

Discrete Appurtenance Properties 1.2D + 1.6W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
194.0	DragonWave	2	11	0.4	0.4	9.3	9.3	0.80	0.50	2.0	26.9	28.73	13	31
194.0	KMW TTA (HB-X-WM-	3	16	0.6	1.3	7.3	3.7	0.80	0.50	0.0	0.0	28.65	30	69
194.0	NextNet BTS-2500	3	35	1.8	1.6	11.3	5.1	0.80	0.50	0.0	0.0	28.65	85	151
194.0	KMW AM-X-WM-17-	3	14	3.4	4.0	7.3	2.6	0.80	0.73	0.0	0.0	28.65	229	61
194.0	Decibel DB844H90E-	6	14	3.6	4.0	8.0	6.5	0.80	0.92	0.0	0.0	28.65	621	121
194.0	Argus LLPX310R	3	29	4.3	3.5	11.8	4.5	0.80	0.63	0.0	0.0	28.65	253	124
194.0	DragonWave A-ANT-	2	27	4.7	2.2	0.0	0.0	0.80	1.00	2.0	586.5	28.73	293	78
194.0	EMS RR90-11-00DBL	2	18	5.6	4.0	12.0	7.0	0.80	0.82	0.0	0.0	28.65	286	52
194.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	28.65	846	1296
184.0	12" x 12" Junction	1	10	1.2	1.0	12.0	8.0	0.80	1.00	0.0	0.0	28.22	37	14
183.0	Alcatel-Lucent 800	3	53	2.1	1.6	13.0	10.8	1.00	0.67	6.0	993.5	28.44	166	229
183.0	Alcatel-Lucent 1900	3	60	2.3	2.1	11.1	10.7	1.00	0.67	6.0	1082.1	28.44	180	259
183.0	Andrew DB980H90E-	6	9	3.9	5.0	6.3	3.0	0.80	0.79	3.0	1708.0	28.31	569	73
183.0	RFS APXVSPP18-C-	1	57	8.0	6.0	11.8	7.0	0.80	0.69	3.0	511.3	28.31	170	82
183.0	Powerwave Allgon	2	64	9.1	4.5	20.0	6.5	0.80	0.61	3.0	1022.4	28.31	341	184
183.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	28.18	931	1296
175.0	RFS FD9R6004/2C-3L	12	3	0.4	0.5	6.5	1.5	0.80	0.50	3.0	202.6	27.95	68	45
175.0	Amphenol Antel BXA-	3	11	2.9	4.0	6.1	4.1	0.80	0.71	3.0	571.4	27.95	190	45
175.0	Rymsa MGD3-800TX	3	15	3.3	4.4	6.3	3.5	0.80	0.69	3.0	630.8	27.95	210	67
175.0	Antel BXA-80080/4CF	3	14	4.8	4.0	11.2	5.9	0.80	0.67	3.0	880.3	27.95	293	62
175.0	Swedcom SLCP	1	20	6.5	4.4	14.0	11.0	0.80	0.73	3.0	431.6	27.95	144	29
175.0	Amphenol Antel BXA-	1	19	7.3	5.7	11.2	5.3	0.80	0.66	3.0	437.2	27.95	146	28
175.0	Powerwave Allgon	1	33	8.1	6.0	12.0	5.0	0.80	0.65	3.0	482.2	27.95	161	48
175.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	27.82	1021	1728
167.0	Powerwave TT19-	3	16	0.6	0.8	6.7	5.4	0.80	0.67	-2.0	76.6	27.35	38	69
167.0	Powerwave TT19-	3	16	0.6	0.8	6.7	5.4	0.80	0.67	-2.0	76.6	27.35	38	69
167.0	Raycap DC6-48-60-	2	32	1.3	2.0	9.7	9.7	0.80	1.00	2.0	153.4	27.54	77	92
167.0	Ericsson RRUS 11	6	55	2.5	1.5	17.0	7.2	0.80	0.67	0.0	0.0	27.45	303	475
167.0	Ericsson RRUS-32	3	77	3.3	2.5	13.3	9.5	0.80	0.67	2.0	398.7	27.54	199	333
167.0	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.77	-2.0	757.6	27.35	379	151
167.0	KMW AM-X-CD-16-	3	49	8.0	6.0	11.8	5.9	0.80	0.79	-2.0	1131.4	27.35	566	210
167.0	CCI OPA-65R-LCUU-	2	73	9.7	6.0	14.8	7.4	0.80	0.79	-2.0	908.5	27.35	454	210
167.0	CCI OPA-65R-LCUU-	1	88	13.0	7.7	14.8	7.4	0.80	0.79	-2.0	610.4	27.35	305	127
167.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	27.45	810	1296
157.0	Kathrein 742 213	3	22	5.1	6.4	6.1	2.7	1.00	0.67	0.0	0.0	26.97	379	95
148.0	Ericsson KRY 112	3	11	0.4	0.6	6.1	2.7	0.80	0.50	0.0	0.0	26.52	18	48
148.0	Ericsson RRUS 11	3	51	2.8	1.6	17.0	7.2	0.80	0.67	0.0	0.0	26.52	162	219
148.0	Ericsson AIR 21, 1.3	3	83	6.1	4.7	12.0	8.0	0.80	0.71	0.0	0.0	26.52	372	359
148.0	Ericsson AIR 21,	3	82	6.1	4.7	12.1	7.9	0.80	0.70	0.0	0.0	26.52	369	352
148.0	Andrew LNX-	3	51	11.4	8.0	11.9	7.1	0.80	0.70	0.0	0.0	26.52	693	222
148.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	26.52	783	1296
125.0	Motorola PTP54600	2	12	1.8	1.2	14.5	3.8	1.00	0.58	0.0	0.0	25.27	70	35
101.0	GPS	2	10	1.0	1.0	9.0	6.0	1.00	1.00	1.0	64.9	23.84	65	29
101.0	Standoffs	2	75	2.5	0.0	0.0	0.0	1.00	0.90	0.0	0.0	23.78	146	216
79.00	Standoffs	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	22.16	75	108
79.00	10' Dipole	1	30	3.8	10.0	3.0	3.0	1.00	1.00	10.0	1172.6	22.93	117	43
76.00	PCTEL GPS-TMG-HR-	1	1	0.1	0.4	3.2	3.2	1.00	1.00	0.0	0.0	21.92	3	1
76.00	Standoffs	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.92	75	108
	Totals	133	8564	643.0										

Tower Loading

Discrete Appurtenance Properties 0.9D + 1.6W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
194.0	DragonWave	2	11	0.4	0.4	9.3	9.3	0.80	0.50	2.0	26.9	28.73	13	17
194.0	KMW TTA (HB-X-WM-	3	16	0.6	1.3	7.3	3.7	0.80	0.50	0.0	0.0	28.65	30	39
194.0	NextNet BTS-2500	3	35	1.8	1.6	11.3	5.1	0.80	0.50	0.0	0.0	28.65	85	85
194.0	KMW AM-X-WM-17-	3	14	3.4	4.0	7.3	2.6	0.80	0.73	0.0	0.0	28.65	229	35
194.0	Decibel DB844H90E-	6	14	3.6	4.0	8.0	6.5	0.80	0.92	0.0	0.0	28.65	621	68
194.0	Argus LLPX310R	3	29	4.3	3.5	11.8	4.5	0.80	0.63	0.0	0.0	28.65	253	69
194.0	DragonWave A-ANT-	2	27	4.7	2.2	0.0	0.0	0.80	1.00	2.0	586.5	28.73	293	44
194.0	EMS RR90-11-00DBL	2	18	5.6	4.0	12.0	7.0	0.80	0.82	0.0	0.0	28.65	286	29
194.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	28.65	846	729
184.0	12" x 12" Junction	1	10	1.2	1.0	12.0	8.0	0.80	1.00	0.0	0.0	28.22	37	8
183.0	Alcatel-Lucent 800	3	53	2.1	1.6	13.0	10.8	1.00	0.67	6.0	993.5	28.44	166	129
183.0	Alcatel-Lucent 1900	3	60	2.3	2.1	11.1	10.7	1.00	0.67	6.0	1082.1	28.44	180	146
183.0	Andrew DB980H90E-	6	9	3.9	5.0	6.3	3.0	0.80	0.79	3.0	1708.0	28.31	569	41
183.0	RFS APXVSPP18-C-	1	57	8.0	6.0	11.8	7.0	0.80	0.69	3.0	511.3	28.31	170	46
183.0	Powerwave Allgon	2	64	9.1	4.5	20.0	6.5	0.80	0.61	3.0	1022.4	28.31	341	104
183.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	28.18	931	729
175.0	RFS FD9R6004/2C-3L	12	3	0.4	0.5	6.5	1.5	0.80	0.50	3.0	202.6	27.95	68	25
175.0	Amphenol Antel BXA-	3	11	2.9	4.0	6.1	4.1	0.80	0.71	3.0	571.4	27.95	190	26
175.0	Rymsa MGD3-800TX	3	15	3.3	4.4	6.3	3.5	0.80	0.69	3.0	630.8	27.95	210	37
175.0	Antel BXA-80080/4CF	3	14	4.8	4.0	11.2	5.9	0.80	0.67	3.0	880.3	27.95	293	35
175.0	Swedcom SLCP	1	20	6.5	4.4	14.0	11.0	0.80	0.73	3.0	431.6	27.95	144	16
175.0	Amphenol Antel BXA-	1	19	7.3	5.7	11.2	5.3	0.80	0.66	3.0	437.2	27.95	146	16
175.0	Powerwave Allgon	1	33	8.1	6.0	12.0	5.0	0.80	0.65	3.0	482.2	27.95	161	27
175.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	27.82	1021	972
167.0	Powerwave TT19-	3	16	0.6	0.8	6.7	5.4	0.80	0.67	-2.0	76.6	27.35	38	39
167.0	Powerwave TT19-	3	16	0.6	0.8	6.7	5.4	0.80	0.67	-2.0	76.6	27.35	38	39
167.0	Raycap DC6-48-60-	2	32	1.3	2.0	9.7	9.7	0.80	1.00	2.0	153.4	27.54	77	52
167.0	Ericsson RRUS 11	6	55	2.5	1.5	17.0	7.2	0.80	0.67	0.0	0.0	27.45	303	267
167.0	Ericsson RRUS-32	3	77	3.3	2.5	13.3	9.5	0.80	0.67	2.0	398.7	27.54	199	187
167.0	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.77	-2.0	757.6	27.35	379	85
167.0	KMW AM-X-CD-16-	3	49	8.0	6.0	11.8	5.9	0.80	0.79	-2.0	1131.4	27.35	566	118
167.0	CCI OPA-65R-LCUU-	2	73	9.7	6.0	14.8	7.4	0.80	0.79	-2.0	908.5	27.35	454	118
167.0	CCI OPA-65R-LCUU-	1	88	13.0	7.7	14.8	7.4	0.80	0.79	-2.0	610.4	27.35	305	71
167.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	27.45	810	729
157.0	Kathrein 742 213	3	22	5.1	6.4	6.1	2.7	1.00	0.67	0.0	0.0	26.97	379	53
148.0	Ericsson KRY 112	3	11	0.4	0.6	6.1	2.7	0.80	0.50	0.0	0.0	26.52	18	27
148.0	Ericsson RRUS 11	3	51	2.8	1.6	17.0	7.2	0.80	0.67	0.0	0.0	26.52	162	123
148.0	Ericsson AIR 21, 1.3	3	83	6.1	4.7	12.0	8.0	0.80	0.71	0.0	0.0	26.52	372	202
148.0	Ericsson AIR 21,	3	82	6.1	4.7	12.1	7.9	0.80	0.70	0.0	0.0	26.52	369	198
148.0	Andrew LNX-	3	51	11.4	8.0	11.9	7.1	0.80	0.70	0.0	0.0	26.52	693	125
148.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	26.52	783	729
125.0	Motorola PTP54600	2	12	1.8	1.2	14.5	3.8	1.00	0.58	0.0	0.0	25.27	70	20
101.0	GPS	2	10	1.0	1.0	9.0	6.0	1.00	1.00	1.0	64.9	23.84	65	16
101.0	Standoffs	2	75	2.5	0.0	0.0	0.0	1.00	0.90	0.0	0.0	23.78	146	122
79.00	Standoffs	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	22.16	75	61
79.00	10' Dipole	1	30	3.8	10.0	3.0	3.0	1.00	1.00	10.0	1172.6	22.93	117	24
76.00	PCTEL GPS-TMG-HR-	1	1	0.1	0.4	3.2	3.2	1.00	1.00	0.0	0.0	21.92	3	0
76.00	Standoffs	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.92	75	61
	Totals	133	8564	643.0										

Tower Loading

Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elevation (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
194.0	DragonWave	2	14	0.6	0.4	9.3	9.3	0.80	0.50	2.0	5.2	6.52	3	40
194.0	KMW TTA (HB-X-WM-	3	22	0.9	1.3	7.3	3.7	0.80	0.50	0.0	0.0	6.50	6	89
194.0	NextNet BTS-2500	3	47	2.5	1.6	11.3	5.1	0.80	0.50	0.0	0.0	6.50	16	196
194.0	KMW AM-X-WM-17-	3	97	4.3	4.0	7.3	2.6	0.80	0.73	0.0	0.0	6.50	41	359
194.0	Decibel DB844H90E-	6	128	4.5	4.0	8.0	6.5	0.80	0.92	0.0	0.0	6.50	110	941
194.0	Argus LLPX310R	3	39	5.8	3.5	11.8	4.5	0.80	0.63	0.0	0.0	6.50	49	160
194.0	DragonWave A-ANT-	2	127	6.4	2.2	0.0	0.0	0.80	1.00	2.0	112.8	6.52	56	318
194.0	EMS RR90-11-00DBL	2	162	6.1	4.0	12.0	7.0	0.80	0.82	0.0	0.0	6.50	44	398
194.0	Round Sector	3	677	31.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	6.50	261	2653
184.0	12" x 12" Junction	1	64	1.7	1.0	12.0	8.0	0.80	1.00	0.0	0.0	6.40	7	79
183.0	Alcatel-Lucent 800	3	143	2.8	1.6	13.0	10.8	1.00	0.67	6.0	182.5	6.45	30	552
183.0	Alcatel-Lucent 1900	3	158	3.0	2.1	11.1	10.7	1.00	0.67	6.0	199.0	6.45	33	611
183.0	Andrew DB980H90E-	6	105	5.0	5.0	6.3	3.0	0.80	0.79	3.0	308.7	6.42	103	771
183.0	RFS APXVSPP18-C-	1	262	9.3	6.0	11.8	7.0	0.80	0.69	3.0	84.4	6.42	28	328
183.0	Powerwave Allgon	2	279	10.3	4.5	20.0	6.5	0.80	0.61	3.0	165.3	6.42	55	701
183.0	Round Sector	3	621	24.7	0.0	0.0	0.0	0.75	0.75	0.0	0.0	6.39	226	2453
175.0	RFS FD9R6004/2C-3L	12	16	0.6	0.5	6.5	1.5	0.80	0.50	3.0	45.5	6.34	15	239
175.0	Amphenol Antel BXA-	3	95	3.8	4.0	6.1	4.1	0.80	0.71	3.0	105.2	6.34	35	350
175.0	Rymsa MGD3-800TX	3	21	4.5	4.4	6.3	3.5	0.80	0.69	3.0	121.0	6.34	40	86
175.0	Antel BXA-80080/4CF	3	144	5.8	4.0	11.2	5.9	0.80	0.67	3.0	150.4	6.34	50	530
175.0	Swedcom SLCP	1	223	7.6	4.4	14.0	11.0	0.80	0.73	3.0	71.7	6.34	24	272
175.0	Amphenol Antel BXA-	1	192	8.5	5.7	11.2	5.3	0.80	0.66	3.0	72.7	6.34	24	235
175.0	Powerwave Allgon	1	218	9.4	6.0	12.0	5.0	0.80	0.65	3.0	79.4	6.34	26	269
175.0	Flat Light Sector	3	705	33.2	0.0	0.0	0.0	0.75	0.67	0.0	0.0	6.31	268	2827
167.0	Powerwave TT19-	3	44	0.9	0.8	6.7	5.4	0.80	0.67	-2.0	15.2	6.20	8	171
167.0	Powerwave TT19-	3	44	0.9	0.8	6.7	5.4	0.80	0.67	-2.0	15.2	6.20	8	171
167.0	Raycap DC6-48-60-	2	114	2.5	2.0	9.7	9.7	0.80	1.00	2.0	43.0	6.25	22	288
167.0	Ericsson RRUS 11	6	137	3.2	1.5	17.0	7.2	0.80	0.67	0.0	0.0	6.22	54	1063
167.0	Ericsson RRUS-32	3	176	4.6	2.5	13.3	9.5	0.80	0.67	2.0	78.7	6.25	39	688
167.0	Powerwave Allgon	3	172	6.6	4.6	11.0	5.0	0.80	0.77	-2.0	128.2	6.20	64	645
167.0	KMW AM-X-CD-16-	3	240	9.3	6.0	11.8	5.9	0.80	0.79	-2.0	186.6	6.20	93	900
167.0	CCI OPA-65R-LCUU-	2	308	11.0	6.0	14.8	7.4	0.80	0.79	-2.0	147.2	6.20	74	775
167.0	CCI OPA-65R-LCUU-	1	383	14.6	7.7	14.8	7.4	0.80	0.79	-2.0	97.4	6.20	49	481
167.0	Round Sector	3	618	24.6	0.0	0.0	0.0	0.75	0.67	0.0	0.0	6.22	196	2441
157.0	Kathrein 742 213	3	135	6.4	6.4	6.1	2.7	1.00	0.67	0.0	0.0	6.12	67	502
148.0	Ericsson KRY 112	3	27	0.6	0.6	6.1	2.7	0.80	0.50	0.0	0.0	6.01	4	107
148.0	Ericsson RRUS 11	3	137	3.5	1.6	17.0	7.2	0.80	0.67	0.0	0.0	6.01	29	530
148.0	Ericsson AIR 21, 1.3	3	252	7.1	4.7	12.0	8.0	0.80	0.71	0.0	0.0	6.01	62	967
148.0	Ericsson AIR 21,	3	250	7.2	4.7	12.1	7.9	0.80	0.70	0.0	0.0	6.01	62	960
148.0	Andrew LNX-	3	315	13.1	8.0	11.9	7.1	0.80	0.70	0.0	0.0	6.01	112	1170
148.0	Round Sector Frame	3	669	31.0	0.0	0.0	0.0	0.75	0.67	0.0	0.0	6.01	239	2623
125.0	Motorola PTP54600	2	16	2.4	1.2	14.5	3.8	1.00	0.58	0.0	0.0	5.73	13	45
101.0	GPS	2	15	3.3	1.0	9.0	6.0	1.00	1.00	1.0	30.6	5.41	31	42
101.0	Standoffs	2	100	2.8	0.0	0.0	0.0	1.00	0.90	0.0	0.0	5.39	23	277
79.00	Standoffs	1	99	2.8	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.03	12	137
79.00	10' Dipole	1	40	5.0	10.0	3.0	3.0	1.00	1.00	10.0	219.9	5.20	22	55
76.00	PCTEL GPS-TMG-HR-	1	10	0.3	0.4	3.2	3.2	1.00	1.00	0.0	0.0	4.97	1	12
76.00	Standoffs	1	99	2.8	0.0	0.0	0.0	1.00	1.00	0.0	0.0	4.97	12	137
	Totals	133	23823	951.4										

Tower Loading

Discrete Appurtenance Properties 1.0D + 1.0W Service

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
194.0	DragonWave	2	11	0.4	0.4	9.3	9.3	0.80	0.50	2.0	5.5	9.38	3	21
194.0	KMW TTA (HB-X-WM-	3	16	0.6	1.3	7.3	3.7	0.80	0.50	0.0	0.0	9.36	6	48
194.0	NextNet BTS-2500	3	35	1.8	1.6	11.3	5.1	0.80	0.50	0.0	0.0	9.36	17	105
194.0	KMW AM-X-WM-17-	3	14	3.4	4.0	7.3	2.6	0.80	0.73	0.0	0.0	9.36	47	43
194.0	Decibel DB844H90E-	6	14	3.6	4.0	8.0	6.5	0.80	0.92	0.0	0.0	9.36	127	84
194.0	Argus LLPX310R	3	29	4.3	3.5	11.8	4.5	0.80	0.63	0.0	0.0	9.36	52	86
194.0	DragonWave A-ANT-	2	27	4.7	2.2	0.0	0.0	0.80	1.00	2.0	119.7	9.38	60	54
194.0	EMS RR90-11-00DBL	2	18	5.6	4.0	12.0	7.0	0.80	0.82	0.0	0.0	9.36	58	36
194.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	9.36	173	900
184.0	12" x 12" Junction	1	10	1.2	1.0	12.0	8.0	0.80	1.00	0.0	0.0	9.21	8	10
183.0	Alcatel-Lucent 800	3	53	2.1	1.6	13.0	10.8	1.00	0.67	6.0	202.7	9.29	34	159
183.0	Alcatel-Lucent 1900	3	60	2.3	2.1	11.1	10.7	1.00	0.67	6.0	220.8	9.29	37	180
183.0	Andrew DB980H90E-	6	9	3.9	5.0	6.3	3.0	0.80	0.79	3.0	348.6	9.24	116	51
183.0	RFS APXVSPP18-C-	1	57	8.0	6.0	11.8	7.0	0.80	0.69	3.0	104.3	9.24	35	57
183.0	Powerwave Allgon	2	64	9.1	4.5	20.0	6.5	0.80	0.61	3.0	208.7	9.24	70	128
183.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	9.20	190	900
175.0	RFS FD9R6004/2C-3L	12	3	0.4	0.5	6.5	1.5	0.80	0.50	3.0	41.3	9.13	14	31
175.0	Amphenol Antel BXA-	3	11	2.9	4.0	6.1	4.1	0.80	0.71	3.0	116.6	9.13	39	32
175.0	Rymsa MGD3-800TX	3	15	3.3	4.4	6.3	3.5	0.80	0.69	3.0	128.7	9.13	43	46
175.0	Antel BXA-80080/4CF	3	14	4.8	4.0	11.2	5.9	0.80	0.67	3.0	179.7	9.13	60	43
175.0	Swedcom SLCP	1	20	6.5	4.4	14.0	11.0	0.80	0.73	3.0	88.1	9.13	29	20
175.0	Amphenol Antel BXA-	1	19	7.3	5.7	11.2	5.3	0.80	0.66	3.0	89.2	9.13	30	19
175.0	Powerwave Allgon	1	33	8.1	6.0	12.0	5.0	0.80	0.65	3.0	98.4	9.13	33	33
175.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	9.08	208	1200
167.0	Powerwave TT19-	3	16	0.6	0.8	6.7	5.4	0.80	0.67	-2.0	15.6	8.93	8	48
167.0	Powerwave TT19-	3	16	0.6	0.8	6.7	5.4	0.80	0.67	-2.0	15.6	8.93	8	48
167.0	Raycap DC6-48-60-	2	32	1.3	2.0	9.7	9.7	0.80	1.00	2.0	31.3	8.99	16	64
167.0	Ericsson RRUS 11	6	55	2.5	1.5	17.0	7.2	0.80	0.67	0.0	0.0	8.96	62	330
167.0	Ericsson RRUS-32	3	77	3.3	2.5	13.3	9.5	0.80	0.67	2.0	81.4	8.99	41	231
167.0	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.77	-2.0	154.6	8.93	77	105
167.0	KMW AM-X-CD-16-	3	49	8.0	6.0	11.8	5.9	0.80	0.79	-2.0	230.9	8.93	115	146
167.0	CCI OPA-65R-LCUU-	2	73	9.7	6.0	14.8	7.4	0.80	0.79	-2.0	185.4	8.93	93	146
167.0	CCI OPA-65R-LCUU-	1	88	13.0	7.7	14.8	7.4	0.80	0.79	-2.0	124.6	8.93	62	88
167.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	8.96	165	900
157.0	Kathrein 742 213	3	22	5.1	6.4	6.1	2.7	1.00	0.67	0.0	0.0	8.81	77	66
148.0	Ericsson KRY 112	3	11	0.4	0.6	6.1	2.7	0.80	0.50	0.0	0.0	8.66	4	33
148.0	Ericsson RRUS 11	3	51	2.8	1.6	17.0	7.2	0.80	0.67	0.0	0.0	8.66	33	152
148.0	Ericsson AIR 21, 1.3	3	83	6.1	4.7	12.0	8.0	0.80	0.71	0.0	0.0	8.66	76	249
148.0	Ericsson AIR 21,	3	82	6.1	4.7	12.1	7.9	0.80	0.70	0.0	0.0	8.66	75	245
148.0	Andrew LNX-	3	51	11.4	8.0	11.9	7.1	0.80	0.70	0.0	0.0	8.66	141	154
148.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	8.66	160	900
125.0	Motorola PTP54600	2	12	1.8	1.2	14.5	3.8	1.00	0.58	0.0	0.0	8.25	14	24
101.0	GPS	2	10	1.0	1.0	9.0	6.0	1.00	1.00	1.0	13.2	7.79	13	20
101.0	Standoffs	2	75	2.5	0.0	0.0	0.0	1.00	0.90	0.0	0.0	7.76	30	150
79.00	Standoffs	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.24	15	75
79.00	10' Dipole	1	30	3.8	10.0	3.0	3.0	1.00	1.00	10.0	239.3	7.49	24	30
76.00	PCTEL GPS-TMG-HR-	1	1	0.1	0.4	3.2	3.2	1.00	1.00	0.0	0.0	7.16	1	1
76.00	Standoffs	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.16	15	75
	Totals	133	8564	643.0										

Tower Loading

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out Of Zone	Spacing (in)	Orientation Factor	Ka Override
5.00	194.0	Climbing Ladder	1	1.50	6.90	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
8.00	194.0	1 1/4" Coax	10	1.55	0.63	90	3	Block	0.00	N	0.00	1.00	0.00
8.00	194.0	1 5/8" Coax	6	1.98	0.82	50	3	Block	0.00	N	0.00	1.00	0.00
8.00	194.0	1/2" Coax	2	0.63	0.15	0	2	Individual	0.00	N	1.00	1.00	0.00
8.00	194.0	2" Conduit	2	2.38	3.65	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
8.00	194.0	5/16" Coax	6	0.32	0.04	0	2	Individual	0.00	N	0.00	1.00	0.01
8.00	194.0	Wave Guide	1	1.50	5.00	0	3	Individual	0.00	N	0.00	1.00	0.00
8.00	194.0	Wave Guide	1	1.50	5.00	0	3	Individual	0.00	N	0.00	1.00	0.01
8.00	184.0	1 5/8" Coax	6	1.98	0.82	50	3	Block	0.00	N	0.00	1.00	0.00
8.00	183.0	1 1/4" Hybriflex Cab	3	1.54	1.00	0	Lin App	Individual	0.00	N	0.00	1.00	0.00
8.00	183.0	Wave Guide	1	1.00	5.00	0	2	Individual	0.00	N	0.00	1.00	0.00
8.00	175.0	1 5/8" Coax	12	1.98	0.82	50	Lin App	Block	0.00	N	0.00	1.00	0.00
8.00	167.0	0.39" Fiber Trunk	2	0.39	0.06	0	Lin App	Individual	0.00	N	1.00	1.00	0.01
8.00	167.0	0.78" 8 AWG 6	2	0.78	0.59	0	Lin App	Individual	0.00	N	0.00	1.00	0.01
8.00	167.0	0.78" 8 AWG 6	2	0.78	0.59	0	Lin App	Individual	0.00	N	0.00	1.00	0.01
8.00	167.0	1 5/8" Coax	12	1.98	0.82	0	1	Individual	0.00	N	1.00	1.00	0.00
8.00	167.0	Wave Guide	1	1.50	5.00	0	1	Individual	0.00	N	0.00	1.00	0.00
8.00	157.0	1 5/8" Coax	6	1.98	0.82	0	1	Individual	0.00	N	0.00	1.00	0.00
8.00	157.0	Waveguide	1	1.50	6.00	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
8.00	148.0	1 1/4" Hybriflex	1	1.54	1.00	0	Lin App	Individual	0.00	N	1.00	1.00	0.01
8.00	148.0	1 5/8" Coax	12	1.98	0.82	67	3	Block	0.00	N	0.00	1.00	0.00
8.00	148.0	Wave Guide	1	1.50	5.00	0	3	Individual	0.00	N	0.00	1.00	0.00
8.00	125.0	1/4" Coax	2	0.34	0.06	0	1	Individual	0.00	N	0.00	1.00	0.00
8.00	101.0	1/2" Coax	2	0.63	0.15	0	3	Individual	0.00	N	0.00	1.00	0.00
8.00	79.00	1/2" Coax	1	0.63	0.15	0	1	Individual	0.00	N	0.00	1.00	0.00
8.00	76.00	1/2" Coax	1	0.63	0.15	0	2	Individual	0.00	N	0.00	1.00	0.00

Force/Stress Summary

Section: 1 15N25 Bot Elev (ft): 0.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 8" DIA PIPE	-434.38	1.2D + 1.6W	9.77	100	100	100	40.7	50.0	510.32	0	0	0.00	0.00	85	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 4X4X0.25	-14.67	0.9D + 1.6W 90	23.62	48	48	48	171.1	43.5	14.96	1	1	17.89	23.40	98	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 8" DIA PIPE	395.49	0.9D + 1.6W 60	50	65	576.00	0	0	0.00	0.00	68	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 4X4X0.25	14.36	1.2D + 1.6W 90	50	65	62.93	1	1	17.89	14.14	101	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	358.12	0.9D + 1.6W 60	0.00	0	0	
Top Compression	404.31	1.2D + 1.6W	0.00	0		
Bot Tension	395.49	0.9D + 1.6W 60	605.70	65	10	1" A354-BC
Bot Compression	446.04	1.2D + 1.6W	0.00	0		

Section: 2 14N46 Bot Elev (ft): 20.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 8 EHS	-391.04	1.2D + 1.6W	9.77	100	100	100	40.1	50.0	388.80	0	0	0.00	0.00	100	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 4X4X0.25	-14.08	1.2D + 1.6W 90	22.69	48	48	48	164.4	43.5	16.22	1	1	17.89	23.40	86	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 8 EHS	354.50	1.2D + 1.6W 60	50	65	437.40	0	0	0.00	0.00	81	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 4X4X0.25	13.83	1.2D + 1.6W 90	50	65	62.93	1	1	17.89	14.14	97	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	317.75	0.9D + 1.6W 60	0.00	0	0	
Top Compression	358.20	1.2D + 1.6W	0.00	0		
Bot Tension	358.12	0.9D + 1.6W 60	436.16	82	8	1 A325
Bot Compression	404.31	1.2D + 1.6W	0.00	0		

Force/Stress Summary

Section: 3 13N88 Bot Elev (ft): 40.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 8 EHS	-345.51	1.2D + 1.6W	9.77	100	100	100	40.1	50.0	388.78	0	0	0.00	0.00	88	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3.5X3.5X0.25	-12.72	1.2D + 1.6W 90	20.87	48	48	48	173.3	42.0	12.72	1	1	17.89	23.40	100	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 8 EHS	318.21	0.9D + 1.6W 60	50	65	437.40	0	0	0.00	0.00	72	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3.5X3.5X0.25	12.55	1.2D + 1.6W 90	50	65	53.79	1	1	17.89	14.14	88	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	277.86	0.9D + 1.6W 60	0.00	0	0	
Top Compression	312.73	1.2D + 1.6W	0.00	0		
Bot Tension	317.75	0.9D + 1.6W 60	436.16	73	8	1 A325
Bot Compression	358.20	1.2D + 1.6W	0.00	0		

Section: 4 12N50 Bot Elev (ft): 60.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 6" DIA PIPE	-299.41	1.2D + 1.6W	9.77	100	100	100	53.4	50.0	306.88	0	0	0.00	0.00	97	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3.5X3.5X0.25	-12.37	1.2D + 1.6W 90	19.04	48	48	48	158.1	42.0	15.28	1	1	17.89	23.40	80	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 6" DIA PIPE	278.20	0.9D + 1.6W 60	50	65	378.00	0	0	0.00	0.00	73	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3.5X3.5X0.25	12.25	1.2D + 1.6W 90	50	65	53.79	1	1	17.89	14.14	86	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	234.90	0.9D + 1.6W 60	0.00	0	0	
Top Compression	264.25	1.2D + 1.6W	0.00	0		
Bot Tension	277.86	0.9D + 1.6W 60	436.16	64	8	1 A325
Bot Compression	312.73	1.2D + 1.6W	0.00	0		

Force/Stress Summary

Section: 5 11N223 Bot Elev (ft): 80.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 6 EHS	-254.20	1.2D + 1.6W	6.51	100	100	100	35.1	50.0	275.92	0	0	0.00	0.00	92	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.25	-11.07	1.2D + 1.6W 90	15.90	48	48	48	154.7	50.0	13.59	1	1	17.89	23.40	81	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 6 EHS	232.90	1.2D + 1.6W 60	50	65	301.95	0	0	0.00	0.00	77	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.25	10.86	1.2D + 1.6W 90	50	65	44.65	1	1	17.89	14.14	76	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	189.58	0.9D + 1.6W 60	0.00	0	0	
Top Compression	213.66	1.2D + 1.6W	0.00	0		
Bot Tension	234.90	0.9D + 1.6W 60	327.12	72	6	1 A325
Bot Compression	264.25	1.2D + 1.6W	0.00	0		

Section: 6 10N152 Bot Elev (ft): 100.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 5" DIA PIPE	-204.49	1.2D + 1.6W	6.51	100	100	100	42.5	50.0	240.98	0	0	0.00	0.00	84	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2.5X2.5X0.25	-9.24	1.2D + 1.6W 90	14.13	48	48	48	165.8	36.0	9.77	1	1	12.43	17.40	94	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 5" DIA PIPE	189.89	0.9D + 1.6W 60	50	65	274.95	0	0	0.00	0.00	69	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2.5X2.5X0.25	9.26	1.2D + 1.6W 90	36	58	32.71	1	1	12.43	10.44	88	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	145.98	0.9D + 1.6W 60	0.00	0	0	
Top Compression	165.52	1.2D + 1.6W	0.00	0		
Bot Tension	189.58	0.9D + 1.6W 60	327.12	58	6	1 A325
Bot Compression	213.66	1.2D + 1.6W	0.00	0		

Force/Stress Summary

Section: 7 9N216 Bot Elev (ft): 120.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 5" DIA PIPE	-155.82	1.2D + 1.6W	6.51	100	100	100	42.5	50.0	240.99	0	0	0.00	0.00	64	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2.5X2.5X0.25	-8.94	1.2D + 1.6W 90	11.25	48	48	48	132.0	36.0	15.41	1	1	12.43	17.40	71	Bolt Shear

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 5" DIA PIPE	146.18	0.9D + 1.6W 60	50	65	274.95	0	0	0.00	0.00	53	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2.5X2.5X0.25	8.74	1.2D + 1.6W 90	36	58	32.71	1	1	12.43	10.44	83	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	98.77	0.9D + 1.6W 60	0.00	0	0	
Top Compression	114.12	1.2D + 1.6W	0.00	0		
Bot Tension	145.98	0.9D + 1.6W 60	218.08	67	4	1 A325
Bot Compression	165.52	1.2D + 1.6W	0.00	0		

Section: 8 A780252 Bot Elev (ft): 140.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 4" DIA PIPE	-106.91	1.2D + 1.6W	4.88	100	100	100	39.6	50.0	176.95	0	0	0.00	0.00	60	Member X
HORIZ SAE - 2X2X0.125	-0.43	1.2D + 1.6W 60	6.760	100	100	100	203.8	36.0	2.61	1	1	12.43	8.70	16	Member Z
DIAG SAE - 2X2X0.25	-7.06	1.2D + 1.6W 90	9.847	48	48	48	145.1	36.0	10.09	1	1	12.43	17.40	70	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 4" DIA PIPE	97.79	1.2D + 1.6W 60	50	65	198.45	0	0	0.00	0.00	49	Member
HORIZ SAE - 2X2X0.125	0.27	1.2D + 1.6W	36	58	12.60	1	1	12.43	5.22	5	Bolt Bear
DIAG SAE - 2X2X0.25	7.05	1.2D + 1.6W 90	36	58	24.55	1	1	12.43	10.44	67	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	52.92	0.9D + 1.6W 60	0.00	0	0	
Top Compression	63.52	1.2D + 1.6W	0.00	0		
Bot Tension	98.77	0.9D + 1.6W 60	218.08	45	4	1 A325
Bot Compression	114.12	1.2D + 1.6W	0.00	0		

Force/Stress Summary

Section: 9 A780178 Bot Elev (ft): 160.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 3" DIA PIPE	-62.79	1.2D + 1.6W	0.25	100	100	100	2.6	50.0	135.83	0	0	0.00	0.00	46	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2X2X0.1875	-6.92	1.2D + 1.6W 90	7.798	48	48	48	115.5	36.0	11.48	2	1	24.86	26.10	60	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 3" DIA PIPE	51.80	1.2D + 1.6W 60	50	65	135.90	0	0	0.00	0.00	38	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2X2X0.1875	6.83	1.2D + 1.6W 90	36	58	18.74	2	1	24.86	20.88	36	Member

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	8.91	0.9D + 1.6W 60	0.00	0	0	
Top Compression	13.90	1.2D + 1.6W	0.00	0		
Bot Tension	52.92	0.9D + 1.6W 60	166.24	32	4	7/8 A325
Bot Compression	63.52	1.2D + 1.6W	0.00	0		

Section: 10 A780178 Bot Elev (ft): 180.0 Height (ft): 16.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 2-1/2" DIA PIP	-13.77	1.2D + 1.6W	0.25	100	100	100	3.2	50.0	76.62	0	0	0.00	0.00	17	Member X
HORIZ SAE - 2X2X0.125	-0.39	1.2D + 1.6W 90	6.646	100	100	100	200.4	36.0	2.70	1	1	12.43	8.70	14	Member Z
DIAG SAE - 1.75X1.75X0.18	-2.87	1.2D + 1.6W	7.757	48	48	48	130.3	36.0	8.23	1	1	12.43	13.05	34	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 2-1/2" DIA PIP	8.63	1.2D + 1.6W 60	50	65	76.68	0	0	0.00	0.00	11	Member
HORIZ SAE - 2X2X0.125	0.40	1.2D + 1.6W 60	36	58	12.60	1	1	12.43	5.22	7	Bolt Bear
DIAG SAE - 1.75X1.75X0.18	2.77	1.2D + 1.6W	36	58	15.67	1	1	12.43	7.83	35	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0	0	
Top Compression	0.36	1.2D + 1.0Di +	0.00	0		
Bot Tension	8.91	0.9D + 1.6W 60	120.40	7	4	3/4 A325
Bot Compression	13.90	1.2D + 1.6W	0.00	0		

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

AT&T Existing Facility

Site ID: CT2091

Ansonia NW Spectrasite Tower
401 Wakalee Avenue
Ansonia, CT 06401

November 9, 2015

EBI Project Number: 6215005551

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	5.30 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

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November 9, 2015

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT2091 – Ansonia NW Spectrasite Tower**

EBI Consulting was directed to analyze the proposed AT&T facility located at **401 Wakalee Avenue, Ansonia, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **401 Wakalee Avenue, Ansonia, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 4 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 4 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 LTE channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 60 Watts

7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

8) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antennas used in this modeling are the **Powerwave 7770.00** for 1900 MHz (PCS) and 850 MHz channels, the **CCI OPA-65R-LCUU-H6 & CCI OPA-65R-LCUU-H8** for and 2300 MHz (WCS) and 850 MHz and the **KMW AM-X-CD-16-65-00T-RET & Powerwave P65-17-XLH-RR** for 1900 MHz (PCS) and 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The maximum gain values for these antennas are listed in the following Site Inventory and Power Data table. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerline of the proposed antennas is **167 feet** above ground level (AGL).

11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

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AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	167 feet	Height (AGL):	167 feet	Height (AGL):	167 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	8	Channel Count	8	# PCS Channels:	8
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	4,281.78	ERP (W):	4,281.78	ERP (W):	4,281.78
Antenna A1 MPE%	**0.77**	Antenna B1 MPE%	**0.77**	Antenna C1 MPE%	**0.77**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H8	Make / Model:	CCI OPA-65R-LCUU-H8
Gain:	12.5 / 15.5 dBd	Gain:	13.45 / 15 dBd	Gain:	12.5 / 15.5 dBd
Height (AGL):	167 feet	Height (AGL):	167 feet	Height (AGL):	167 feet
Frequency Bands	850 MHz / 2300 MHz (WCS)	Frequency Bands	850 MHz / 2300 MHz (WCS)	Frequency Bands	850 MHz / 2300 MHz (WCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	180	Total TX Power:	180	Total TX Power:	180
ERP (W):	5,324.78	ERP (W):	5,107.39	ERP (W):	5,324.78
Antenna A2 MPE%	**0.85**	Antenna B2 MPE%	**0.85**	Antenna C2 MPE%	**0.85**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	KMW AM-X-CD-16-65-00T-RET	Make / Model:	Powerwave P65-17-XLH-RR	Make / Model:	KMW AM-X-CD-16-65-00T-RET
Gain:	13.35 / 15.25 dBd	Gain:	14.3 / 15.1 dBd	Gain:	13.35 / 15.25 dBd
Height (AGL):	167 feet	Height (AGL):	167 feet	Height (AGL):	167 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	240	Total TX Power:	240	Total TX Power:	240
ERP (W):	6,614.85	ERP (W):	7,112.97	ERP (W):	6,614.85
Antenna A3 MPE%	**1.33**	Antenna B3 MPE%	**1.50**	Antenna C3 MPE%	**1.33**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**3.11**
MetroPCS	0.28 %
Clearwire	0.05 %
Sprint	0.51 %
Verizon Wireless	0.97 %
Nextel	0.36 %
T-Mobile	0.02 %
Site Total MPE %:	**5.30 %**

AT&T Sector 1 Total:	2.95 %
AT&T Sector 2 Total:	3.11 %
AT&T Sector 3 Total:	2.95 %
Site Total:	5.30 %

AT&T _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	4	414.12	167	2.30	850	567	0.41 %
AT&T 1900 MHz (PCS) UMTS	4	656.33	167	3.64	1900	1000	0.36 %
AT&T 850 MHz GSM	2	656.33	167	1.82	850	567	0.32 %
AT&T 2300 MHz (WCS) LTE	2	1897.37	167	5.26	2300	1000	0.53 %
AT&T 700 MHz LTE	2	1614.92	167	4.48	700	467	0.96 %
AT&T 1900 MHz (PCS) LTE	2	1941.56	167	5.39	1900	1000	0.54 %
						Total:	3.11 %

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Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector 1:	2.95 %
Sector 2:	3.11 %
Sector 3 :	2.95 %
AT&T Maximum Total (per sector):	3.11 %
Site Total:	5.30 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **5.30%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

PROJECT INFORMATION

SCOPE OF WORK:

- AT&T ANTENNAS: (1) NEW LTE ANTENNA PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW LTE ANTENNAS; (2) EXISTING ANTENNAS TO REMAIN (2 PER SECTOR). (1) EXISTING ANTENNA PER SECTOR TO BE REMOVED FOR A TOTAL OF 3 ANTENNAS.
- AT&T RRUs: (1) NEW RRUs PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW RRUs; (2) EXISTING RRU PER SECTOR TO REMAIN, FOR A TOTAL OF (6) EXISTING RRUs.
- AT&T DC-6: (1) NEW DC-6 SQUID, (1) EXISTING DC-6 SQUID
- AT&T CABLING: (1) NEW FIBER TRUNK AND (2) NEW DC TRUNKS

SITE ADDRESS:	401 WAKELEE AVENUE ANSONIA, CT 06401
LATITUDE:	41.3560750 41° 21' 21.87"N
LONGITUDE:	-73.0920269 73° 5' 31.29684"W
USID:	44824
TOWER OWNER:	AMERICAN TOWER 116 HUNTINGTON AVENUE, 11TH FLOOR BOSTON, MA 02116
TYPE OF SITE:	SELF SUPPORTING TOWER/INDOOR EQUIPMENT
TOWER HEIGHT:	196'-0"± (ABOVE BASE PLATE)
RAD CENTER:	167'-0"± (ABOVE BASE PLATE)
CURRENT USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY
PROPOSED USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

DRAWING INDEX

		REV.
T-1	TITLE SHEET	0
GN-1	GROUNDING & GENERAL NOTES	0
A-1	COMPOUND LAYOUT	0
A-2	EQUIPMENT LAYOUT	0
A-3	ANTENNA LAYOUTS & ELEVATION	0
A-4	DETAILS	0
G-1	GROUNDING, ONE-LINE DIAGRAM & DETAILS	0

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN, ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AMD MAY IMPOSE CHANGES OR SITE MODIFICATIONS.

DISCIPLINE:	NAME:	DATE:
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

at&t MOBILITY

FA CODE: 10035308
SITE NUMBER: CT2091
SITE NAME: ANSONIA
NW_SPECTRASITE TOWER

VICINITY MAP

DEPART 500 ENTERPRISE DR, ROCKY HILL, CT 06067: ON ENTERPRISE DR (EAST). TURN LEFT (NORTH-WEST) ONTO CAPITOL BLVD [CAPITAL BLVD]. BEAR RIGHT (NORTH) ONTO CAPITOL BLVD, THEN IMMEDIATELY TURN LEFT (WEST) ONTO WEST ST. TAKE RAMP (LEFT) ONTO I-91 AT EXIT 17, TURN RIGHT ONTO RAMP. TAKE RAMP (LEFT) ONTO SR-15 [WILBUR CROSS PKWY] AT EXIT 58, TAKE RAMP (RIGHT) ONTO SR-34 [DERBY AVE]. TAKE RAMP (RIGHT) ONTO SR-8 [GENERAL SAMUEL JESKILKA HWY]. AT EXIT 19, TURN RIGHT ONTO RAMP, TURN RIGHT (SOUTH) ONTO SR-334 [WAKELEE AVE]. KEEP STRAIGHT TO STAY ON SR-334 [WAKELEE AVE]. TURN RIGHT (WEST) ONTO LOCAL ROAD(S) ARRIVE AT SITE.

PROJECT TEAM

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APPROVED

GENERAL NOTES

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3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

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EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT2091
SITE NAME: ANSONIA
NW_SPECTRASITE TOWER
401 WAKELEE AVENUE
ANSONIA, CT 06401
NEW HAVEN COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	02/16/16	ISSUED AS FINAL	GR	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL: STATE OF CONNECTICUT, NICHOLAS D. BARILE, No. 28643, PROFESSIONAL ENGINEER, CT PROFESSIONAL ENGINEER

AT&T

DRAWING TITLE: TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
15061-EMP	T-1	0

GROUNDING NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471-000-3PS-EG00-0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED WITH STAINLESS STEEL HARDWARE TO THE BRIDGE AND THE TOWER GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

13. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV-G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').

14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE ½" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   - CONTRACTOR – EMPIRE TELECOM
   - SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   - OWNER – AT&T MOBILITY
   - OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR (EMPIRE TELECOM).

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

7. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

8. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR

9. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OFF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

12. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

13. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

14. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy=36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

15. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741-000-3APS-A00Z-00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

17. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

19. SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
   - INTERNATIONAL BUILDING CODE: IBC 2009 WITH LOCAL & COUNTY AMENDMENTS
   - NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS
   - FIRE/LIFE SAFETY CODE: NFPA-101 2009 WITH LOCAL & COUNTY AMENDMENTS

20. SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
   - AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
   - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, THIRTEENTH EDITION
   - AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM
   - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA-222-G-1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
   - TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
   - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA
   - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVELY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT
   - TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

21. FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

22. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

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EMPIRE telecom
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BILLERICA, MA 01821

SITE NUMBER: CT2091
SITE NAME: ANSONIA
NW_SPECTRASITE TOWER
401 WAKELEE AVENUE
ANSONIA, CT 06401
NEW HAVEN COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	02/16/16	ISSUED AS FINAL	GR	NDB	NDB

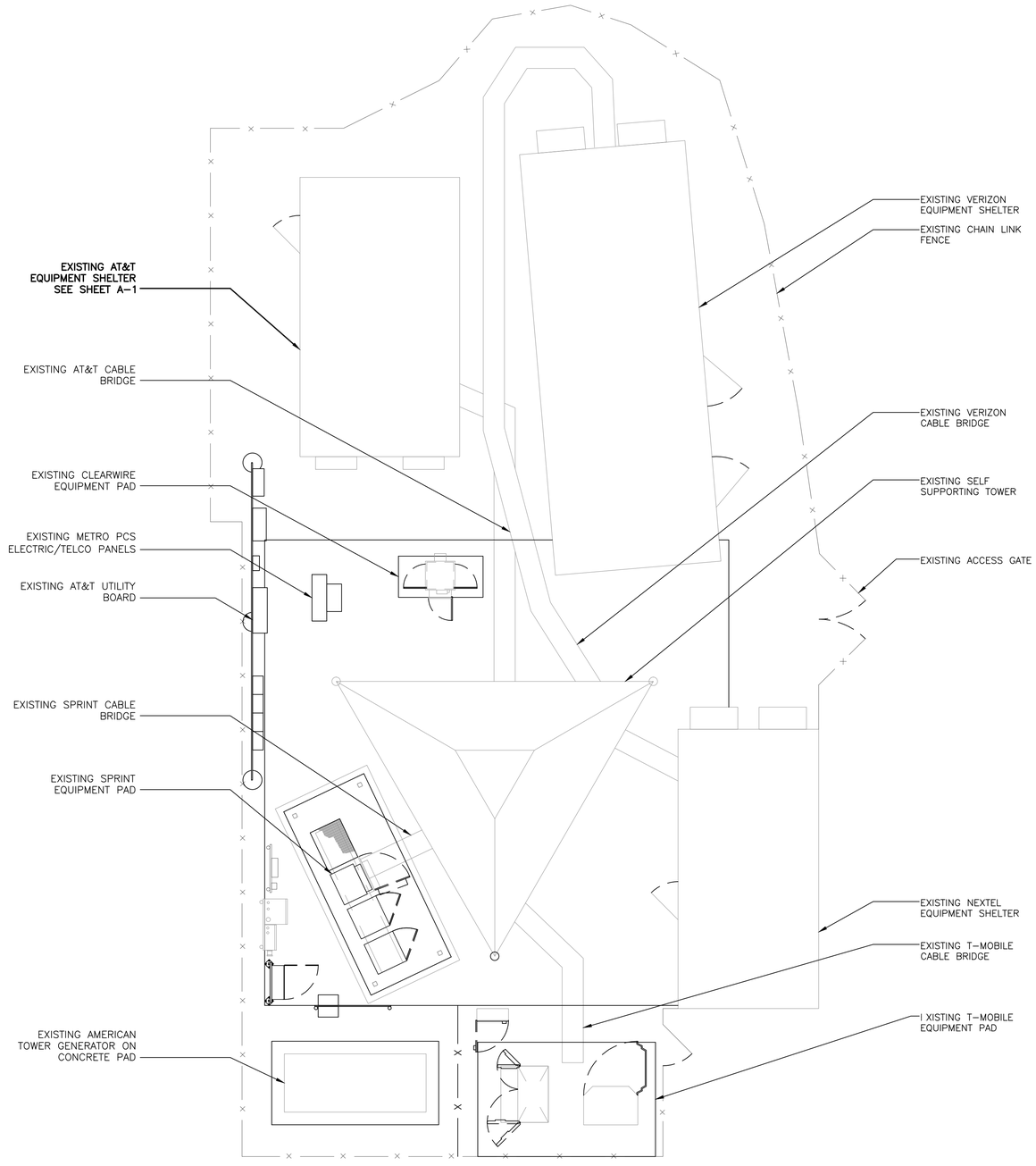
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:
STATE OF CONNECTICUT
DOUGLAS D. BAHLS
PROFESSIONAL ENGINEER
CT 29643
PROFESSIONAL ENGINEER

AT&T

DRAWING TITLE:
GROUNDING & GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
15061-EMP	GN-1	0



COMPOUND LAYOUT

SCALE: 3/16" = 1'-0"

22"x34" SCALE: 3/16" = 1'-0"
11"x17" SCALE: 3/32" = 1'-0"

4' 2' 0" 4'

NORTH

NOTE:
CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

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0	02/16/16	ISSUED AS FINAL	GR	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:
STATE OF CONNECTICUT
DOUGLAS B. HOLMES
REGISTERED
PROFESSIONAL ENGINEER
DOUGLAS B. HOLMES, P.E.
PROJECT MANAGER
CT LICENSE NO. 20643

AT&T

DRAWING TITLE:
ROOFTOP LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
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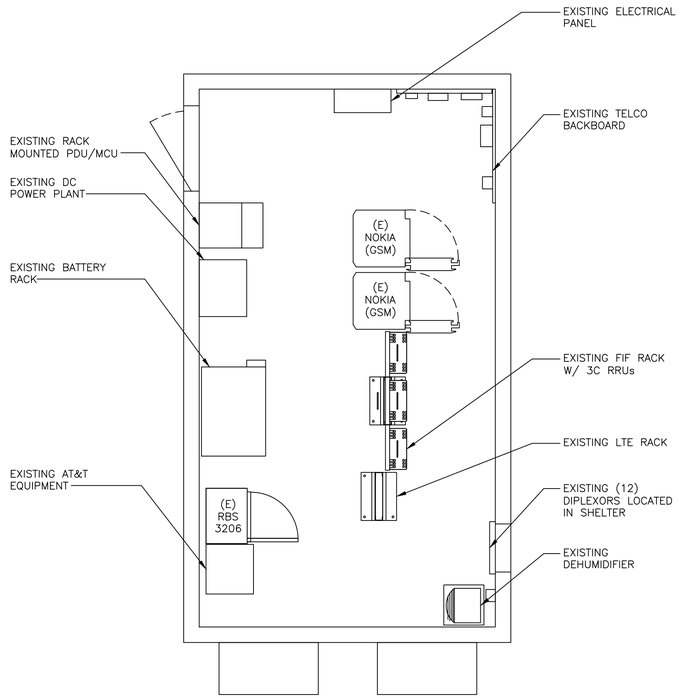


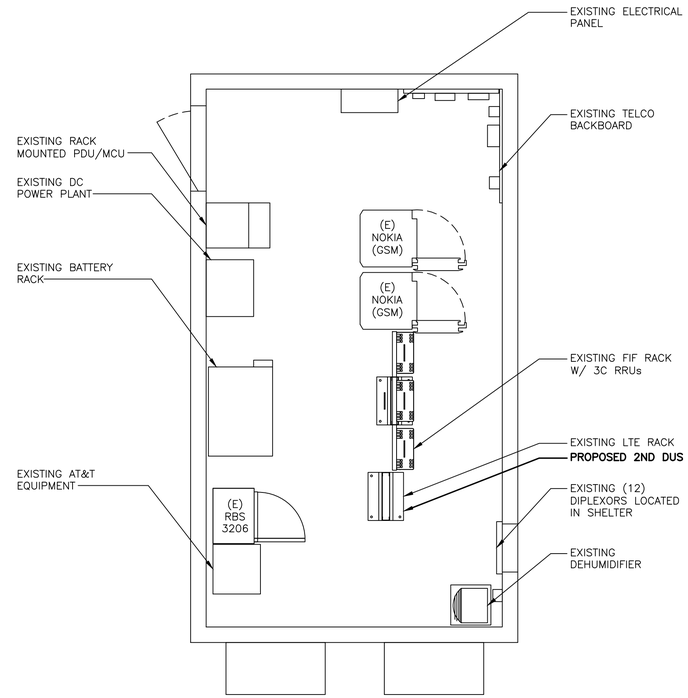
NORTH

EXISTING EQUIPMENT LAYOUT

SCALE: 3/8" = 2'-0"

22"x34" SCALE: 3/8" = 1'-0"
11"x17" SCALE: 3/16" = 1'-0"

2' 1' 0" 2'



NORTH

PROPOSED EQUIPMENT LAYOUT

SCALE: 3/8" = 2'-0"

22"x34" SCALE: 3/8" = 1'-0"
11"x17" SCALE: 3/16" = 1'-0"

2' 1' 0" 2'

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0	02/16/16	ISSUED AS FINAL	GR	NDB	NDB

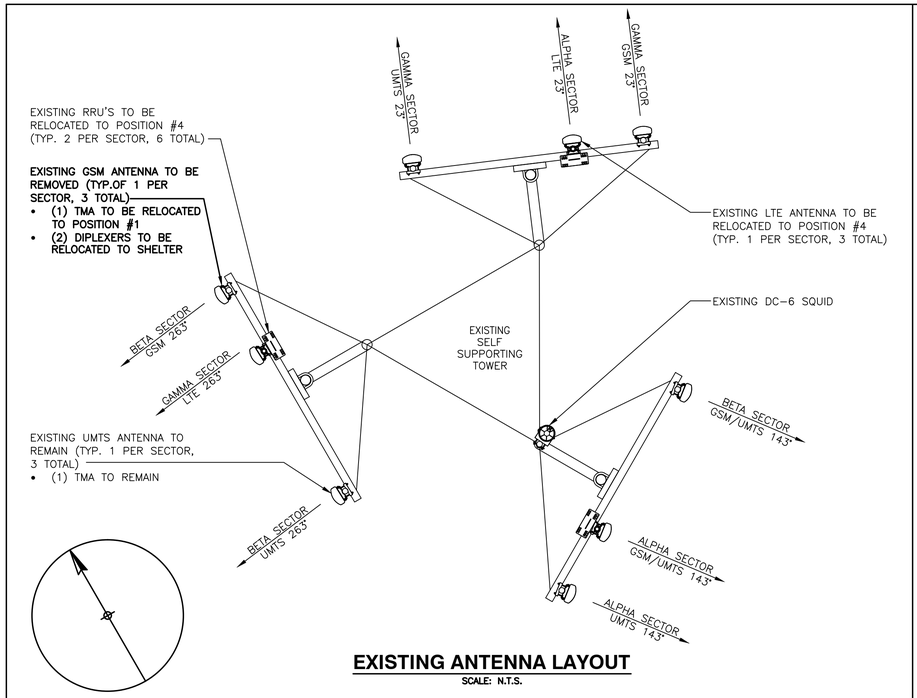
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:
STATE OF CONNECTICUT
NICHOLAS D. BARILE
REG. NO. 28643
PROFESSIONAL ENGINEER
CT PROFESSIONAL ENGINEER 28643

AT&T

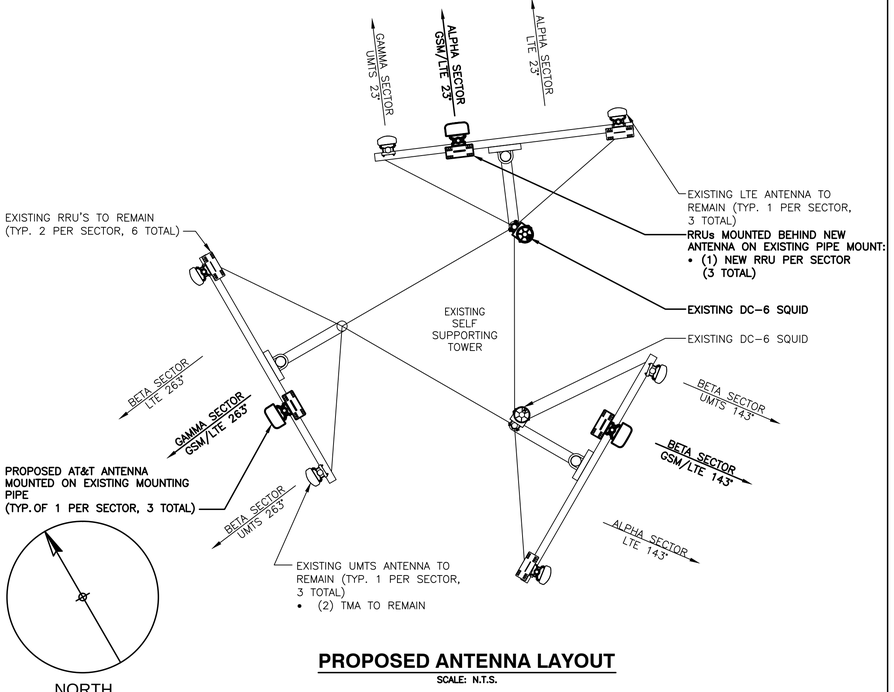
DRAWING TITLE:
EQUIPMENT LAYOUTS

JOB NUMBER	DRAWING NUMBER	REV
15061-EMP	A-2	0



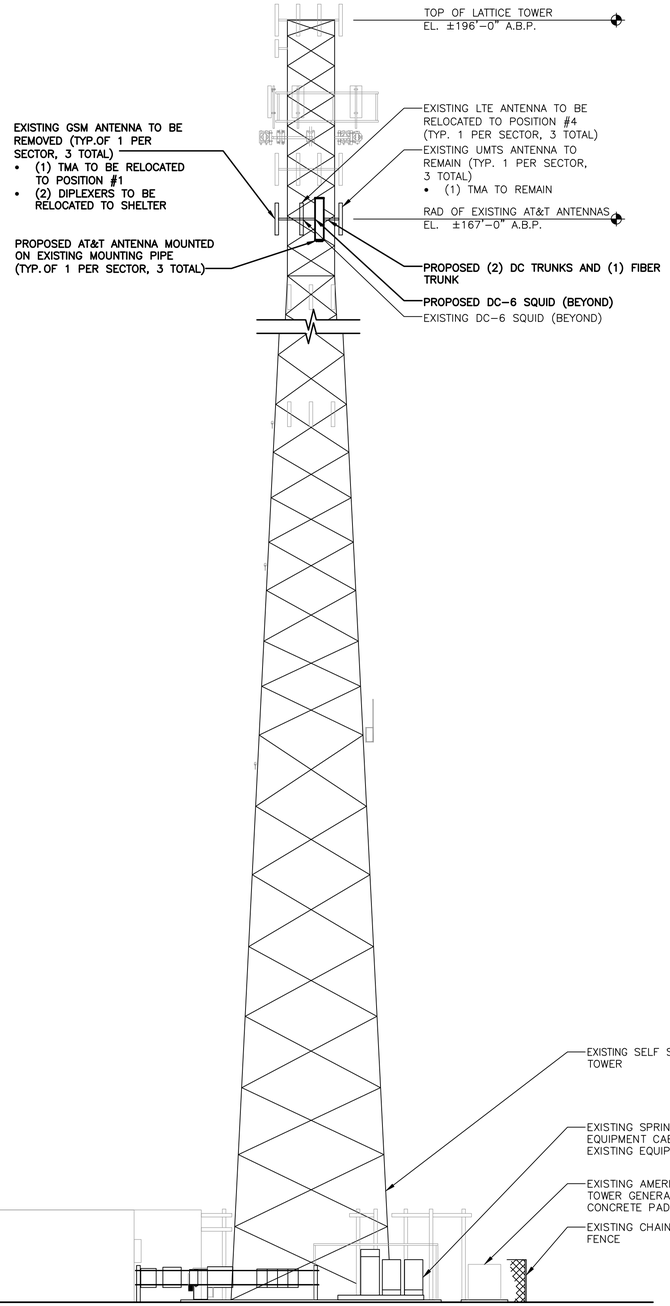
EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT

SCALE: N.T.S.



TOWER ELEVATION

SCALE: NTS

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

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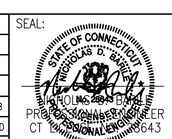
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

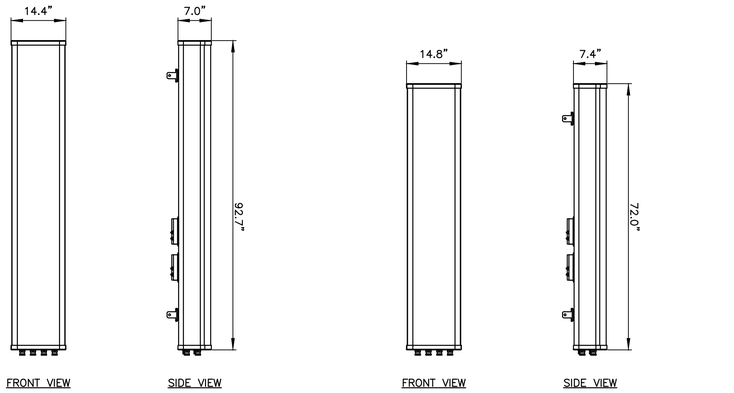
SEAL:



AT&T

DRAWING TITLE:
ANTENNA LAYOUTS & ELEVATION

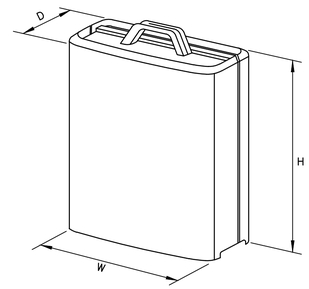
JOB NUMBER	DRAWING NUMBER	REV
15061-EMP	A-3	0



MANUFACTURER	CCI
MODEL	OPA-65R-LCUU-H8
WEIGHT	88.0 LBS

MANUFACTURER	CCI
MODEL	OPA-65R-LCUU-H6
WEIGHT	73.0 LBS

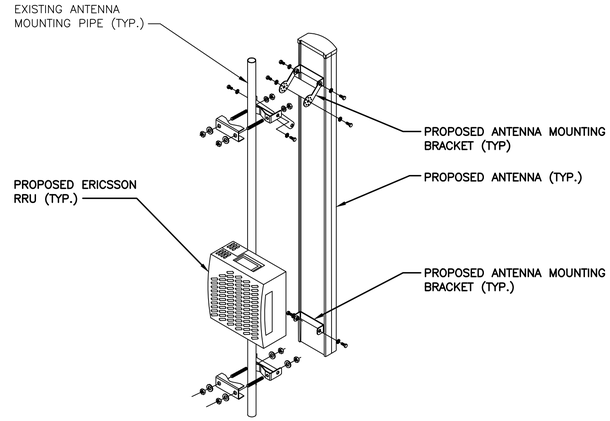
LTE ANTENNA DETAIL
SCALE: N.T.S.



MODEL	L x W x H	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-32	**29.9" x 13.3" x 9.5"**	**77 LBS**

*DENOTES EXISTING.

RRUS DETAIL
SCALE: N.T.S.



ANTENNA AND RRU MOUNTING DETAIL
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770.00	55"x11"x5"
	A2	–	–	–
	A3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	A4	POWERWAVE	P65-17-XLH-RR	96"x12"x6"
BETA	B1	POWERWAVE	7770.00	55"x11"x5"
	B2	–	–	–
	B3	POWERWAVE	P65-17-XLH-RR	96"x12"x6"
	B4	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
GAMMA	G1	POWERWAVE	7770.00	55"x11"x5"
	G2	–	–	–
	G3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	G4	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770.00	55"x11"x5"
	A2	**CCI**	**OPA-65R-LCUU-H6**	**72"x14.8"x7.4"**
	A3	–	–	–
	A4	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
BETA	B1	POWERWAVE	7770.00	55"x11"x5"
	B2	**CCI**	**OPA-65R-LCUU-H8**	**92.7"x14.4"x7**
	B3	–	–	–
	B4	POWERWAVE	P65-17-XLH-RR	96"x12"x6"
GAMMA	G1	POWERWAVE	7770.00.	55"x11"x5"
	G2	**CCI**	**OPA-65R-LCUU-H6**	**72"x14.8"x7.4"**
	G3	–	–	–
	G4	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"

PROPOSED RRH SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**		
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
BETA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**		
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
GAMMA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**		
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		

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NO.	DATE	REVISIONS	BY	CHK	APP'D
0	02/16/16	ISSUED AS FINAL	GR	NDB	NDB

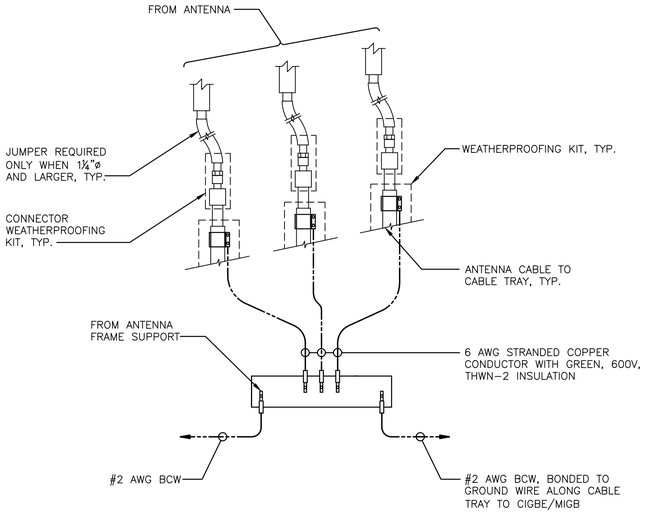
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL: STATE OF CONNECTICUT NICHOLAS D. BARBER LICENSED PROFESSIONAL ENGINEER PROFESSIONAL ENGINEER CT No. 28643

AT&T

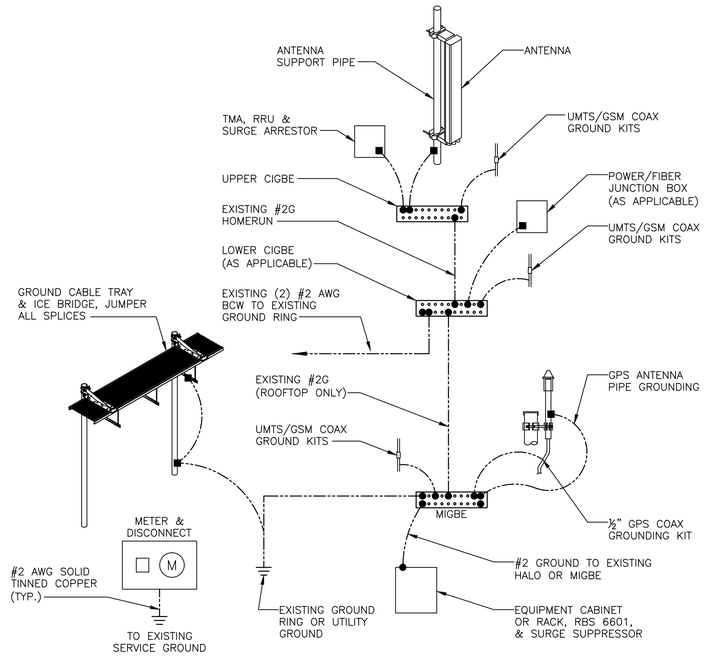
DRAWING TITLE: DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15061-EMP	A-4	0



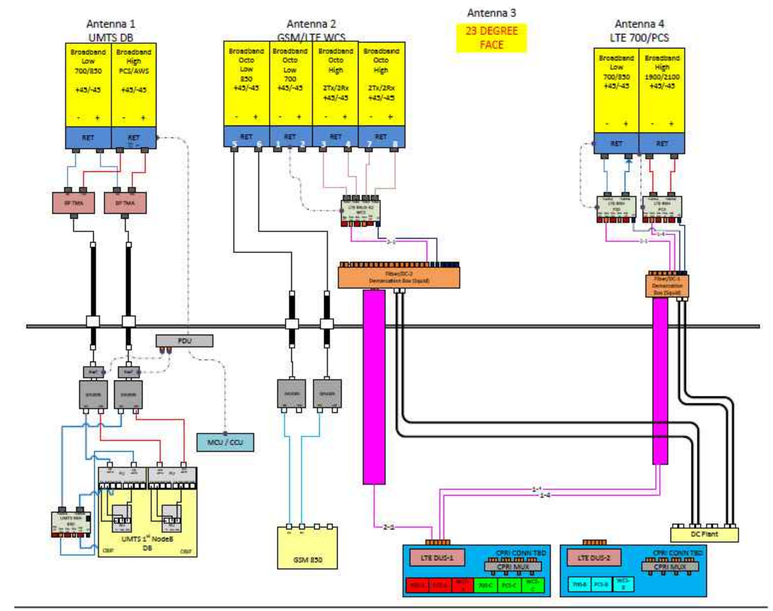
GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



GROUNDING RISER DIAGRAM

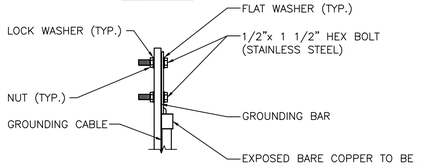
SCALE: N.T.S.



TYPICAL PLUMBING DIAGRAM (PER SECTOR)

SCALE: N.T.S.

ELEVATION



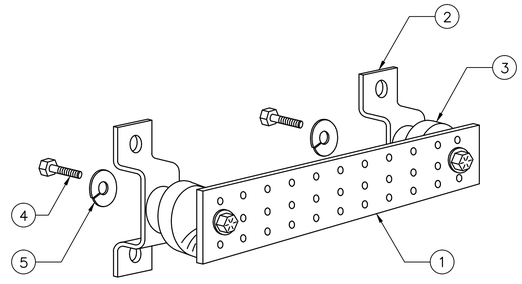
SECTION "A–A"

NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x ¼")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	⅝"–11x1" H.H.C.S.
5	4	⅝" LOCK WASHER

NOTES:

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION

SECTION "P" – SURGE PRODUCERS
- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- –48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES

SECTION "A" – SURGE ABSORBERS
- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

GROUND BAR DETAIL

SCALE: N.T.S.

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EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

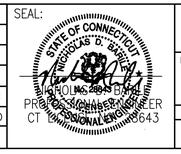
SITE NUMBER: CT2091
SITE NAME: ANSONIA
NW_SPECTRASITE TOWER
401 WAKELEE AVENUE
ANSONIA, CT 06401
NEW HAVEN COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	02/16/16	ISSUED AS FINAL	GR	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:



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DRAWING TITLE:
GROUNDING, ONE–LINE DIAGRAM & DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15061–EMP	G–1	0